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10/788,453	03/01/2004	Naoko Ikegaya	566.43577X00	7377

			EXAMINER

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MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER
MCFADDEN, MICHAEL B

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/788,453	IKEGAYA ET AL.
	Examiner	Art Unit	
	Michael B. McFadden	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *01 March 2004*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *13-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *13-24* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *01 March 2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-12 are cancelled.

2.   Claims 13-24 are pending.

Oath/Declaration

3.   The oath/declaration submitted on June 6th, 2004 is deemed acceptable by the

Examiner.

Drawings

4.   The drawings submitted on March 1st, 2004 are deemed acceptable by the

Examiner.

Abstract

5.   Applicant is reminded of the proper language and format for an abstract of the
disclosure.

   The abstract should be in narrative form and generally limited to a single
paragraph on a separate sheet within the range of 50 to 150 words. It is important that
the abstract not exceed 150 words in length since the space provided for the abstract
on the computer tape used by the printer is limited. The form and legal phraseology
often used in patent claims, such as "means" and "said," should be avoided. The
abstract should describe the disclosure sufficiently to assist readers in deciding whether
there is a need for consulting the full patent text for details.

   The language should be clear and concise and should not repeat information
given in the title. It should avoid using phrases which can be implied, such as, "The
disclosure concerns," "The disclosure defined by this invention," "The disclosure
describes," etc.

6.   The abstract of the disclosure is objected to because it is not limited to a single

paragraph. Correction is required. See MPEP § 608.01(b).

Specification

7.   The disclosure is objected to because of the following informalities:

a.   On lines 50-53, the sentence, "Further, to enhance integrity against

disaster such as an earthquake, it is favorable that remote storages are located

at remoter places as far as possible," does not read clearly. The Examiner

suggests, "Further, to enhance integrity against disaster such as an earthquake,

it is favorable that remote storages are located at remoter places as far **away** as

possible."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

9.   Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had

possession of the claimed invention. In claim 23, on line 5, "an arithmetic unit" is

claimed, and nowhere in the specification or drawings is an arithmetic unit disclosed.

For purposes of examination the Examiner will ignore this limitation.

Claim Rejections - 35 USC ' 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

11.   Claims 13, 19, 20, and 23 are rejected under 35 U.S.C. 102(e) as being

anticipated by LeCrone (U.S. Patent No. 6,529,944).

12.   **As per claim 13**, LeCrone discloses a computer system which includes a

plurality of storage subsystems being sequentially concatenated to a host computer,

and which performs remote copy between said storage subsystems **(See Figure 1,**

Elements 2, SYMM2, SYMM5, and SYMM6 also See Column 1, Lines 26-30),

A first storage subsystem comprising:

An interface which receives a status information acquisition command and which

sends status information from the first storage subsystem to a second storage

subsystem that is located on a nearer side of the first storage subsystem relative to

the host computer and connected to the first storage subsystem;

An outgoing status information storage unit which stores said status information to be sent to said second storage subsystem;

A target storage subsystem judgment unit which judges whether a target storage subsystem identified in the status information acquisition command received by said interface is the first storage subsystem.

A command downstream sending unit which sends said status information acquisition command to a third storage subsystem that is located on a farther side of the first storage subsystem relative to the host computer and connected to the first storage subsystem, when said target storage subsystem judgment unit judges that the first storage subsystem is not said target storage subsystem from which said status information is to be acquired;

A self status information acquisition unit which acquires the status information of the first storage subsystem and which stores the acquired status information to be sent to the second storage subsystem into said outgoing status information storage unit, when said target storage subsystem judgment unit judges that the first storage subsystem is said target storage subsystem from which said status information is to be acquired, and

A downstream status information acquisition unit which receives the status information from said third storage subsystem and which stores the received status information to be sent to the second storage into said outgoing status information storage unit,

Wherein, after said self status information acquisition unit or said downstream status information acquisition unit stores said status information into said outgoing status information storage unit, said interface sends said status information stored.

Regarding the claim see Column 8, Lines 40-47. This teaches that the host (Fig.1, element 2) has the capability to determine the status of any device anywhere in the stream. Also it states that the commands can be sent downstream to take effect one or two or more SRDF locations away. In order for this to occur each unit must contain an interface, which receives the status acquisition command and sends it back upstream to the unit next in line. There also must be an outgoing status information storage unit, which stores the status information that will be sent.

A target storage subsystem judgment unit must also be present because the host is able to select which system's status is being acquired. (See Column 9, Lines 9-12) In order to identify itself using that query the judgment unit must be present.

A command downstream sending must also be present in order to send the commands from the host downstream.

A self status information acquisition unit must be present if the systems (Fig.1, Element SYMM2, SYMM5, SYMM6) are able to inform the host of their status information. A downstream status information sending unit must also be present in order to receive the information being sent from downstream systems.

The information clearly is sent along the chain and reporting back to the host the requested status information.

13. **As per claim 19,** LeCrone discloses a computer system comprising:

A host computer **(Figure 1, Element 2)**,

A plurality of storage subsystems which are sequentially concatenated to said host computer and remote copy is performed between said plurality of storage subsystems **(Figure 1, Element SYMM2, SYMM5, SYMM6)**,

Wherein a first storage subsystem comprising:

An interface which receives status information acquisition command and which sends status information to a second storage subsystem that is located on a nearer side of the first storage subsystem relative to the host computer and connected to the first storage subsystem,

An outgoing status information storage unit which stores said status information to be sent to said second storage subsystem,

A target storage subsystem judgment unit which judges whether a target storage subsystem identified in the status information acquisition command received through said interface is the first storage subsystem,

A command downstream sending unit which sends said status information acquisition command to a third storage subsystem that is located on a farther side of first storage subsystem relative to the host computer and connected to first storage subsystem, when said target storage subsystem judgment unit judges that

the first storage subsystem is not said target storage subsystem from which said

status information is to be acquired,

A self status information acquisition unit which acquires the status information of

the storage subsystem and which stores the acquired status information to be sent

to the second storage subsystem into said ongoing status information storage unit,

when said target storage subsystem judgment unit judges that the first storage

subsystem is said target storage subsystem from which said status information is to

be acquired, and

A downstream status information acquisition unit which receives the status

information from said third storage subsystem and which stores the received status

information to be sent to the second storage into said outgoing status information

storage unit,

wherein after said self status information acquisition unit or said downstream

status information acquisition unit stores said status information into said outgoing

status information storage unit, said interface sends said status information stored

in said outgoing status information storage unit,

Wherein said host computer comprises:

A status information acquisition command generation unit which generates said

status information acquisition command,

A status information acquisition unit which receives status information from said

plurality of storage subsystems, and

A remote copy adjustment unit which generates information for adjusting a

remote copy according to said status information held in said status information

holding unit.

This claim is rejected using the same rationale as Claim 13. Further

including that the host unit would require a status information acquisition

command generation unit in order to send status requests to the backup

units. Also a status information acquisition unit which receives status

information would be necessary for the host to receive the status information

sent from the backup units.

In column 8, lines 34-47 LeCrone talks about the host having the ability to

send a command downstream that can have a changing effect on one of the

systems. If the target reports that it is idle in the status information that the

host requests, the host can then send a command to the unit. Thereby using

the status information to send an adjustment.

14.   **Claim 20** is rejected using the same rationale as Claim 13.

15.   **Claim 23** is rejected using the same rationale as Claim 13.

Claim Rejections - 35 USC ' 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

17.   Claims 14, 15, 16, and 21 are rejected under 35 U.S.C. 103(a) as being
unpatentable over LeCrone (U.S. Patent No. 6,529,944) as applied to claim 13 above,
and further in view of Reichbauer et al. (herein Reichbauer (U.S. Patent No.
4,881,074)).

18.   **As per claim 14,** LeCrone fails to disclose a concatenation position judgment
unit which judges a concatenation position of the first storage subsystem based on
information stored in said status information acquisition command received from said
upstream storage subsystem,

   Wherein when said concatenation position judgment unit judges that the first
   storage subsystem is a storage connected to said host computer, then, said
   interface sends the status information stored in said status information storage unit
   to said host computer.

   Reichbauer discloses a concatenation position judgment unit which judges a
   concatenation position of the first storage subsystem based on information stored
   in said status information acquisition command received from said upstream
   storage subsystem,

   Wherein when said concatenation position judgment unit judges that the first
   storage subsystem is a storage connected to said host computer, then, said
   interface sends the status information stored in said status information storage unit
   to said host computer.

In column 1, lines 36-45 and column 9, lines 31-51 in Reichbauer a method for acquiring and distributing an address table containing address information of all of the nodes. The sequence of the addresses specifies the sequence or the position of the station in the network. The table can then be distributed with the status request in the network of LeCrone. The table can then be used to determine what position a storage system is in the network.

The storage system would be able to tell if it were directly connected to the host. Providing the address table would establish another method for the storage system to determine if it is connected to the host. If the storage system is directly connected to the host computer it has no choice when sending status information except to send it to the host.

LeCrone and Reichbauer are analogous art because they are from the same field of endeavor, communication networks.

At the time of invention it would have been obvious to a person of ordinary skill in the art to take the address table collection and distribution method and use it in the network of LeCrone.

The motivation for doing so would have been to provide tabular information in an economical manner **(Column 1, Lines 36-45)**.

Therefore, it would have been obvious to combine the address table collection and distribution method of Reichbauer with the network of LeCrone for the benefit of providing tabular information in an economical manner to obtain the invention as specified in claims 14, 15, 16, and 21.

19.   **As per claim 15**, LeCrone in view of Reichbauer disclose a first storage

subsystem according to Claim 14, wherein when said target storage subsystem

judgment unit judges that said target storage subsystem is all of said plurality of

storage subsystems including the storage subsystem sequentially concatenated

from said host computer, and said concatenation position judgment unit judges that

the first storage subsystem is not a storage subsystem concatenated at a farthest

position relative to said host computer among said plurality of storage subsystems

sequentially concatenated, then, said command downstream sending unit sends

said status information acquisition command to the third storage subsystem

connected to the storage subsystem,

Wherein said self status information acquisition unit adds the acquired status

information of the first storage subsystem to the status information that is received

by said downstream status information acquisition unit from said third storage

subsystem and stored in said outgoing status information storage unit, and then,

said self status information acquisition unit stores resultant status information to be

sent to the second storage into said outgoing status information storage unit, and

wherein after said self status information acquisition unit stores said status

information into said outgoing status information storage unit, said interface sends

said status information.

LeCrone shows that there is an 'ALL' command associated with the query

request. (See Column 9, Lines 9-12 of LeCrone) The request specifies a path

and ends in all, which signifies requesting the status information of all

systems at that path. LeCrone also teaches that the path portion of the query command is optional. (Column 9, Lines 5-8) If the host were to issue a query command with no path and 'ALL' then it requests the status information of all of the storage systems. If a system gets the request it will not only acquire its own status information, but it will also send the request downstream to the units farther down the line. When the unit receives the status information from the downstream unit it would also include its status information having been requested by the 'ALL' request.

For the motivation to combine see the rejection of claim 14

20.   **As per claim 16,** LeCrone in view of Reichbauer disclose a storage subsystem according to Claim 15, wherein when said target storage subsystem judgment unit judges that said target storage subsystem is all of said plurality of storage subsystems including the storage subsystem sequentially concatenated from said host computer, and said concatenation position judgment unit judges that the first storage subsystem is not the storage subsystem concatenated at a farthest position seen from said host computer among said plurality of storage subsystems sequentially concatenated, then, said command downstream sending unit instructs said self status information acquisition unit to acquire the status information of the first storage subsystem and to store the acquired status information to be sent to the second storage into said outgoing status information storage unit.

Claim 16 is rejected using the same rationale as claims 14 and 15. If the

'ALL' command is utilized then each storage system will acquire its status

information and prepare to send it upstream.

21.   **Claim 21 is rejected using the same rationale as Claim 15.**

22.   Claims 17, 18, 22, and 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over LeCrone (U.S. Patent No. 6,529,944) as applied to claim 1

above, further in view of Reichbauer et al. (herein Reichbauer (U.S. Patent No.

4,881,074)) as applied to claim 16 above, and further in view of Inamine (U.S.

Patent No. 6, 196, 735).

23.   **As per claim 17,** LeCrone in Reichbauer fail to disclose a storage subsystem

according to Claim 16, further comprising:

An acquired information judgment unit, which judges whether status information

whose acquisition is requested by the status information acquisition command

received, is newest status information,

Wherein when said acquired information judgment unit judges that the newest

status information is not requested, said concatenation position judgment unit

judges that the first storage subsystem is a storage subsystem, and said outgoing

status information storage unit holds the status information, then, said interface

sends the held status information to the host computer without waiting for said self

status information acquisition unit or said downstream status information acquisition

unit to store status information into said outgoing status information storage unit.

Inamine discloses a storage subsystem according to Claim 16, further
comprising:

An acquired information judgment unit, which judges whether status information
whose acquisition is requested by the status information acquisition command
received, is newest status information,

Wherein when said acquired information judgment unit judges that the newest
status information is not requested, said concatenation position judgment unit
judges that the first storage subsystem is a storage subsystem, and said outgoing
status information storage unit holds the status information, then, said interface
sends the held status information to the host computer without waiting for said self
status information acquisition unit or said downstream status information acquisition
unit to store status information into said outgoing status information storage unit.

**Inamine (Column 5, Line 64 – Column 6, Line 12) discloses a method where
the host is able to make a request to refresh status information or not to
refresh status information. When the status request is not a request for
refresh status information the stored status information is sent. When the
request is a request for refresh status information the system refreshes the
status information with the newest status information and sends the newest
status information to the host.**

LeCrone, Reichbauer, and Inamine are analogous art because they are all from
the same field of endeavor, network computing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement the refresh status information request of Inamine in the network system of LeCrone and Reichbauer.

The motivation for doing so would have been to avoid low utilization of data. **(Inamine: Column 1, Lines 61-64)**

Therefore it would have been obvious to combine the refresh status information request of Inamine in the network system of LeCrone and Reichbauer for the benefit of avoiding low utilization of data to obtain the invention as specified in claims 17.

24.   **As per claim 18**, LeCrone, Reichbauer, and Inamine disclose in a computer system which includes a plurality of storage subsystems that are sequentially concatenated to a host computer and performs remote copy between said plurality of storage subsystems, a first storage subsystem comprising:

An interface which receives a status information acquisition command and which sends status information from and to a second storage subsystem that is located on a nearer side of the storage subsystem relative to the host computer and connected to the first storage subsystem,

An outgoing status information storage unit which stores said status information to be sent to said second storage subsystem,

A concatenation position judgment unit which judges a concatenation position of the first storage subsystem based on information stored in said status information acquisition command received from said second storage subsystem, and

A status information acquisition unit,

Wherein said status information acquisition unit acquires the status information of the first storage subsystem at status information acquisition time intervals stored in the status information acquisition command, to store the acquired status information into the outgoing status information storage unit, when said concatenation position judgment unit judges that the first storage subsystem is a storage subsystem located at a farthest position in concatenation order relative to the host computer, and

Wherein said status information acquisition unit acquires the status information of the storage subsystem at a time of receiving status information from a third storage subsystem connected to and located on a farther side of the storage subsystem relative to the host computer, and adds the status information of the first storage subsystem to the received status information of said third storage subsystem, to store resultant status information to the status information storage unit, and

Wherein when the concatenation position judgment unit judges that the storage subsystem in question is not a storage subsystem connected directly to the host computer, then, said interface sends all of said status information stored in the status information storage unit to said upstream storage subsystem.

Claim 18 is rejected using the same rationale as claims 15 and 17 in addition to Inamine: Column 1, lines 58-60. Inamine teaches the acquisition of status information at predetermined regular time intervals. When the

acquisition occurs it will occur in the farthest storage subsystem at regular intervals.

25.   **As per claim 22,** LeCrone, Reichbauer, and Inamine disclose in a computer system which includes a plurality of storage subsystems being sequentially concatenated to a host computer and performs remote copy between said plurality of storage subsystems, a status information monitoring method for monitoring remote copy status of at least one of the storage subsystems sequentially concatenated to first storage subsystems directly coupled to a host computer, said status information monitoring method comprising the steps of:

Generating a status acquisition command for acquiring, at regular time intervals, remote copy status information of all the storage subsystems constituting a specific sequence connected to the host computer,

Sending the generated status acquisition command to the first storage subsystem,

Receiving the sent status acquisition command in the first storage subsystem,

When the received status acquisition command is a command for acquiring the status information of the sequence to which the first storage subsystem belongs, sending the status acquisition command to a second storage subsystem connected to the first storage subsystem,

Sending the received command at said second storage subsystem to a third storage subsystem connected at an end farthest from the host computer,

Acquiring said status information to be sent to the second storage subsystem connected to the third storage system,

According to the received status acquisition command, in the third storage system connected at the end;

Judging in the third storage subsystem, whether or not the storage subsystem is the first storage subsystem,

When it is judged that the storage subsystem is not the first storage subsystem, sending the status information of the third storage subsystem from the third storage subsystem to the second storage subsystem,

Receiving, in the second storage subsystem, the status information of the third storage subsystem,

Adding, in the second storage subsystem, the status information of the second storage subsystem to the received status information of the third storage subsystem'

Judging, in the second storage subsystem, whether or not the storage subsystem is the first storage subsystem,

When it is judged that the storage subsystem is not the first storage subsystem, sending the received status information of the third storage subsystem and the second storage subsystem from the second storage subsystem to the first storage subsystem,

Receiving, in the first storage subsystem, the status information of the third storage subsystem and the second storage subsystem,

Adding, in the first storage subsystem, the status information of the first storage

subsystem to the received status information of the third storage subsystem and

the second storage subsystem,

Judging, in the first storage subsystem, whether or not the storage subsystem is

the first storage subsystem,

When it is judged that the storage subsystem is the first storage subsystem,

holding resultant status information,

Generating, in the host computer, a status information acquisition command for

acquiring remote copy status information of all the storage subsystems constituting

a specific sequence connected to the host computer,

Sending, in the host computer, the generated status information acquisition

command to said first storage subsystem,

Receiving, in the first storage subsystem, the sent status information acquisition

command

Sending from the first storage subsystem, the resultant status information held

by the first storage subsystem to the host computer when a sequence designated

by said command as a sequence from which status information is to be acquired is

a sequence to which the first storage subsystem belongs, and

Receiving the sent status information in the host computer.

Claim 22 is rejected using the same rationale as claim 18. The status

acquisition at regular time intervals occurs all throughout the system.

26.   **As per claim 24**, LeCrone, Reichbauer, and Inamine disclose a computer

system comprising:

A host computer, and

A plurality of storage subsystems, which are sequentially concatenated to, said

host computer and remote copy is performed between said plurality of storage

subsystems,

Wherein a first storage subsystem comprises.

An interface, which receives a status information acquisition command and

sends status information from and to a second storage subsystem that is located

on a nearer side of the first storage subsystem seen from the host computer and

connected to the first storage subsystem,

An outgoing status information storage unit which stores said status information

to be sent to said second storage subsystem,

A concatenation position judgment unit which judges a concatenation position of

the first storage subsystem based on information stored in said status information

acquisition command received from said second storage subsystem, and

A status information acquisition unit which acquires status information of the first

storage subsystem at status information acquisition time intervals stored in the

status information acquisition command, to store the acquired status information

into the outgoing status information storage unit, when said concatenation position

judgment unit judges that the first storage subsystem is a storage subsystem

located at a farthest position in concatenation order seen from the host computer

and acquires status information of the storage subsystem at a time of receiving

status information from a third storage subsystem connected to and located on a

farther side of the storage subsystem in question seen from the host computer, and

which adds the status information of the first storage subsystem to the received

status information of said third storage subsystem, to store resultant status

information to the status information storage unit,

Wherein when the concatenation position judgment unit judges that the first

storage subsystem is not a storage subsystem connected directly to the host

computer, then said interface sends said status information stored in the status

information storage unit to said upstream storage subsystem, and

Wherein said host computer comprises:

A status information acquisition command generation unit which generates a

status information acquisition command,

A status information acquisition unit, which receives status information from said

plurality of storage subsystems,

A status information holding unit which holds the status information acquired by

said status information acquisition unit, and

A remote copy adjustment unit, which generates information for adjusting remote

copy according to, said status information held in said status information holding

unit.

Claim 24 is rejected using the same rationale as claim 18 in combination

with the same rationale as claim 19.

Relevant Art Cited By The Examiner

27.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure:

Gagne et al. (PCT WO 00/49500) discloses a concatenated remote copy system.

Marshak et al. (US Patent Application Pub. No. 2003/0093597) discloses a

concatenated remote copy system as well.

Fukuzawa et al. (EP 0 869 438) discloses a data backup method for

heterogeneous systems.

Kern et al. (U.S. Patent No. 6,484,187) discloses a remote copy system with

status change monitoring.

Ainsworth et al. (U.S. Patent No. 6,974,391) discloses a method for sending

status requests on a scheduled regular basis.

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

28.   The following is a summary of the treatment and status of all claims in the

application as recommended by M.P.E.P. ' 707.07(i):

a(2). CLAIMS NO LONGER IN THE APPLICATION

29.   Claims 1-12 were cancelled by the amendment dated March 15th, 2005.

a(4). CLAIMS REJECTED IN THE APPLICATION

30.   Per the instant office action, claims 13-24 have received a first action on the

merits and are subject of a first action non-final.

b. DIRECTION OF FUTURE CORRESPONDENCES

31.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael B. McFadden whose telephone number is

(571)272-8013. The examiner can normally be reached on Monday-Friday 8:30 - 5:00.

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Manorama Padmanabhan can be reached on (571)272-4210. The fax

phone number for the organization where this application or proceeding is assigned is

571-273-8300.

IMPORTANT NOTE

    Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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MBM

PIERRE VITAL
PRIMARY EXAMINER